traiy, it is not only desirable but necessary that the jet of burning gases should be directed against the surface of the bath.

2. The surface of the bath in the open-hearth melting furnace is heated to the boiling point and at the same time rises 500 to 600 mm. The surface of the hearth of the reheating furnace is solid, except that the melted cinder lies there, slightly wetting the hearth. For this reason, in the open-hearth melting furnace it is necessary to elevate the sills of the ports so that they are at a higher level than the surface of the bath during the boil. But there is no reason for elevating the sill of the ports for a reheating furnace above the hearth level.

In actual practice, if the port sills of a reheating furnace are raised above the hearth to a height equal to the thickness of the ingots to be heated, as is ordinarily done, this will make it impos-

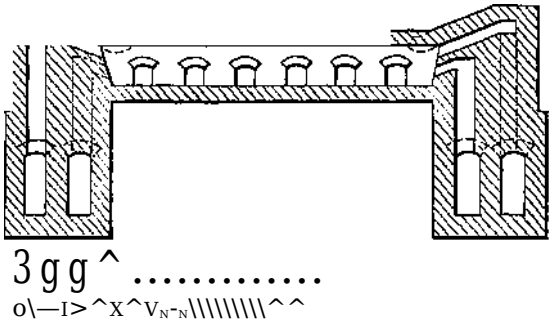

FIG. 108.

sible to get rid of the colder gases which rest on the hearth, and the ingots to be heated will be surrounded by these chilled gases.

It is evident that the rapid heating of the ingots is not possible unless these colder gases can be drained off from the hearth of the furnace. The port sills for Siemens type reheating furnaces, should, therefore, coincide with the hearth level.

Fig. 108 shows a curious design for a Siemens type reheating furnace. The hearth is 8020 mm long, with a width of 2000 rnm. The roof is 1000 mm above the hearth and the heads are of the type used on melting furnaces.

Originally, the roof was straight from one end to the other; later it was dropped, just beyond the heads, as shown by the dotted lines, to a height of 680 mm from the hearth. It is evident that with a hearth length of 8020 mm, the

jet of flaming gases did not touch the hearth, and did not heat the ingots which were